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MANAGEMENT AUDIT REPORT

of the

DATA SERVICE BUREAU

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Piper, C. Erwin
[LA - Data Service Bureau]
Admin. Methods Data proc.

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by

C. Erwin Piper
City Administrative Officer

August, 1975

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Assistant General Manager

Management Systems and Control

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Systems and Programming

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INTRODUCTION

The Data Service Bureau (DSB) was created by ordinance in January, 1964. It provides centralized data processing service to Council-controlled departments and independent departments except to the Departments of Airports and Water and Power. DSB is organized in accordance with the accompanying organization chart and provides the following services:

Systems design and implementation

Computer programming

Data transmittal, storage, processing, retrieval, and display.

The City Administrative Officer, in the budgetary process, recommends to the Mayor and Council an annual Data Processing Projects Program indicating, by priority, those data processing projects to be included in DSB's work program.

From a budget of \$853,887 in Fiscal 1964-65, DSB has grown until its 1974-75 budget is \$7,945,345. The funds are divided among:

System Development	\$ 707,192 (8.9%)
System Operation and Maintenance	6,336,384 (79.7%)
General Administration	901,769 (11.4%)

The Data Service Bureau does not charge Council-controlled departments for its services. However, the fully independent departments and outside agencies are charged. For 1975-76, the reimbursements are estimated to be \$1 million.

The three largest "customers" of the DSB budgeted during the 1974-75 Fiscal Year are the Police Department (\$3,174,910), the Controller's Office (\$1,159,281), and the Library Department (\$914,906).

In March, 1974, the General Manager, Data Service Bureau, submitted his Affirmative Action Program. Since then, several DSB accomplishments have strengthened the Program, such as:

Implementation of an EDP Trainee program which affords clerical and technical employees a career ladder to the Professional Category.

Establishment of a career development training program for minority employees to improve job performance and enhance their promotability.

Pursuance of ways to provide gainful employment for the handicapped. Two handicapped individuals have been appointed.

As of June 30, 1975, the DSB had minorities and women employed in major occupational categories as follows:

<u>Occupational Category</u>	<u>Total Employees</u>	<u>Number</u>	<u>% of Total Employees</u>
OFFICIALS/ADMIN.	10		
Minorities		3	30.0%
Women		0	0
PROFESSIONAL	84		
Minorities		22	26.2%
Women		11	13.1%
TECHNICIAN	185		
Minorities		77	41.6%
Women		57	30.8%
OFFICE/CLERICAL	145		
Minorities		122	84.1%
Women		137	94.5%

The Bureau equals or exceeds City population parity for all minorities and women in the Office/Clerical Category. However, the Bureau has had difficulty in finding and recruiting qualified Spanish-Surnamed Professionals and Technicians.

As a part of this audit, the various users of DSB services were interviewed, as were representatives of Los Angeles and Orange County data processing organizations.

Reactions of City departments were varied. Some indicated that they were generally satisfied with all the services provided. Most were generally satisfied with the services provided in connection with their operational production jobs.

Dissatisfaction seems to center on the system analysis and programming efforts involved in the development of new systems. Many of these user problems can be traced back to a general lack of understanding of City Administrative Officer Rule 13, Development of Data Processing Systems.

The cooperation of the employees and management of the Data Service Bureau is gratefully acknowledged.

For a year or more before the present issue of the journal was published, we had been discussing the possibility of publishing a new journal.

During the last few years, we have been very busy with our own work, and it has been difficult to find time to devote to the publication of a new journal. However, we have now decided to publish a new journal, and we hope that it will be of interest to our readers.

The journal will be published quarterly, and will contain articles on a wide range of subjects. We hope that it will be of interest to our readers, and that it will provide a valuable source of information on the subjects covered.

The journal will be published by the American Chemical Society, and will be available to all members of the Society. We hope that it will be of interest to our readers, and that it will provide a valuable source of information on the subjects covered.

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Year	Volume	Number	Pages
1950	1	1	1-10
1951	2	1	1-10
1952	3	1	1-10
1953	4	1	1-10
1954	5	1	1-10
1955	6	1	1-10
1956	7	1	1-10
1957	8	1	1-10
1958	9	1	1-10
1959	10	1	1-10
1960	11	1	1-10
1961	12	1	1-10
1962	13	1	1-10
1963	14	1	1-10
1964	15	1	1-10
1965	16	1	1-10
1966	17	1	1-10
1967	18	1	1-10
1968	19	1	1-10
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2040	91	1	1-10
2041	92	1	1-10
2042	93	1	1-10
2043	94	1	1-10
2044	95	1	1-10
2045	96	1	1-10
2046	97	1	1-10
2047	98	1	1-10
2048	99	1	1-10
2049	100	1	1-10

The journal will be published by the American Chemical Society, and will be available to all members of the Society. We hope that it will be of interest to our readers, and that it will provide a valuable source of information on the subjects covered.

DISCUSSION OF MAJOR PROBLEMS

1. Department personnel do not clearly understand City Administrative Officer Rule 13.

Discussions with user departments, although indicating support of CAO Rule 13, have indicated a lack of understanding of the Rule and the role of the user, the CAO, and the DSB.

User departments are to provide information in their requests for new systems which will enable DSB and CAO staff to accurately evaluate and estimate the cost of implementing their proposals. Many of these requests, however, have been deficient. Descriptions of work flow are incomplete, the problem to be solved is not fully defined, requirements are not specified, and objectives of the proposed system and its impact on work flow are not fully analyzed. Time and money are wasted if requests are processed in this manner.

In some cases, users have indicated that a lack of trained systems personnel contributes to their difficulties. The Personnel Department is evaluating the need for a special civil service class to meet these departmental needs.

CAO Rule 13 calls for a review of progress and analysis of benefit/cost on all new systems development projects at the end of each phase of development. Reports are required of the user department, DSB, and the CAO. While the various phases are being approved, work tends to progress from one phase to the next without assurance that appropriate end-of-phase reviews and reports have been completed. Phase reports generated by the DSB under the Rule go first to the user and then to the CAO for analysis. The serial approval of all phases under CAO Rule 13 has created delays and results in idle time on the part of DSB or requires it to proceed with the project without approval. See Recommendation No. 8.

Users have indicated confusion as to whether the development of data processing systems using grant funds are supposed to follow the procedures specified in Rule 13. Without conformance to this Rule, the future impact of the system is not always assessed on a phased basis. This has created problems for users and DSB.

Finally, users indicated that they were not made aware of the methods or criteria used by the CAO in approving and evaluating their data processing requests.

The City Administrative Officer plans to revise Rule 13 so that it will:

- a. Clarify and explain the role of the user departments, steering committees, Data Service Bureau, and the CAO with the objective of the CAO and user department sharing overall system design responsibility, the CAO providing consulting services as required, and the DSB being responsible for data processing design.
- b. Indicate that systems financed by grant funds are to be developed in accordance with CAO Rule 13.
- c. Clarify the categories of system maintenance, minor modification, and system enhancements with consideration being given to:
 - (1) Eliminating the \$1,000 limitation on maintenance and minor modifications.
 - (2) Providing the DSB with authority to fix malfunctions and perform only those enhancement projects specifically approved in the work program.
 - (3) Requiring actual costs to be accumulated and compared with estimated costs.
- d. Clarify preparation of the required documents through the use of examples.
- e. Expedite the end-of-phase review process through joint meetings of the CAO, user department, and DSB.
- f. Indicate the criteria used by the CAO in establishing project priorities.

In some instances, user departments are doing business programming and using the DSB computers for activities which do not conform to City policy as stated in Section 22.53 of the Administrative Code. As a result of this problem, the Mayor plans to send a letter to the departments directing them to conform to City policy. He also is instructing the General Manager of DSB to take

appropriate action to have the computer automatically reject unauthorized programs.

2. The status of projects and major maintenance and modification work is difficult to ascertain in the Data Service Bureau.

Some departments indicate that they have difficulty in determining the status of their data processing projects and requests in the Data Service Bureau. This is true even though departments are notified upon receipt of requests for services and are given a work order (file) number and point of contact by name and telephone number. However, due to changing personnel assignments in the Data Service Bureau and user departments and the large volume of requests made by some departments, obtaining the status of requests by telephone is difficult.

The problem is further complicated because DSB has numerous project status reports which are susceptible to different interpretations. See Recommendation No. 6.

3. Documentation in the Data Service Bureau is inadequate and not performed in a systematic way.

Although the Data Service Bureau has been developing revised documentation standards since July, 1972, the new standards are not planned to be completed until late 1976. This level of effort is insufficient for something of this importance. In June, 1972, a consultant recommended that the standards manual be completed by November, 1972.

There are many projects without documentation. These incomplete systems fall into a category best described as "creeping redesign." The system design is not completed and the user's needs are met by frequent modifications of the system. The user has not defined his needs well and the Data Service Bureau has not insisted that requirements be completely defined before programming begins.

The maintenance effort within the DSB includes the completion of documentation of existing systems. However, this effort is part of systems development and should be identified as such. The magnitude of this effort has not been determined. Often, there are no estimates as to the amount of time to complete documentation and priorities for completion are not set.

Criteria were not established on older projects for the turnover of a project from development to a maintenance status. A primary reason for this is that the same people who develop a system also maintain it.

Documentation of projects under development is inadequate. Initial requirements and objectives, performance measured against these objectives, problems encountered and their solutions, programming and test time for different tasks, and design changes (reasons for them and expected benefits versus costs) are missing from most project files.

This information would be valuable in helping project leaders learn from their experiences and would provide answers to questions from user departments as to delays, cost increase, etc., and provide an excellent source of information for follow-up analysis and final documentation. See Recommendation No. 9.

Lack of documentation requires programmers to run jobs which interfere with normal computer operations. In addition, it takes longer to run the programs.

The documentation of certain EAM programs and systems support programs is not kept up-to-date. In systems support, changes to the operating system and other software are not adequately documented. This lack of documentation requires unproductive searching on the part of the system programmers to determine current conditions.

The vault used for storage of computer tapes off-site does not contain documentation of current programs. Without such documentation, the City is vulnerable to great expense if the documentation or programs on-site were destroyed.

The Data Service Bureau has recently begun the development of a systems documentation library which will also contain a collection of state-of-the-art materials on data processing. However, the role of this library has not been defined.

4. There is no procedure to assure user accountability for the cost effectiveness of automated systems.

The objective of automated systems is to expedite the flow of information for decision-making and reduce costs by increasing the efficiency of department activities. CAO Rule 13 assigns user departments responsibility for assuring that this objective is met, and that benefits derived from automation are commensurate with the cost.

Separate studies have been made by a consultant and the CAO to assess user involvement and cost effectiveness of several automated systems. These studies revealed that departments find it difficult to document the cost effectiveness of their systems. In some cases, the computer reports are not even used. In others, the system has become outdated by a change in operations or in other ways is not meeting the objectives for which it was developed.

Regarding user involvement in systems, the consultant noted, "We could find little or no interest, and little or no incentive by the users, once the system was approved, to control project development costs or to make the promised reductions in costs once the project was implemented. . .the users seemed unaware about the costs of operating the systems and certainly we saw little evidence of (a) user initiated changes in design to effect lower operational costs, or (b) user tracking of promised or estimated savings in user personnel to insure that promised savings were actually realized."

User departments do not justify the cost of their existing data processing services in the budget review process. The costs are reviewed only as part of the overall DSB budget. Consequently, users have little incentive to control costs and take responsibility for the quality of service. The City Administrative Officer plans to require user departments to justify the cost of their data processing services as part of their budget request. Incentive can be effectively provided by assigning user departments responsibility for justifying the cost of their services in the budget review process.

The DSB has developed an automated "billing" system which generates cost reports on services to each user agency. This system should be modified to provide user departments with more detailed information. The General Manager of the Data Service Bureau reports that the system is being modified. See Recommendation No. 1.

5. Service to users is hampered by the lack of full data control in the Data Control Section.

The Data Control Section, Data Processing Operations, does not have control over all production jobs processed in the Data Service Bureau. Some jobs go directly to key punch or to EAM, and others go to the Data Pick-up and Delivery Station and then to Data Control or directly to processing. There are several other ways in which data gets into and out of Data Processing Operations. Consequently, it is not possible for Data Control to provide the service which the users should expect.

Deadlines have been allowed to slip on some jobs to the point that disagreements have occurred, service has not been timely, and jobs have been processed on a rush basis unnecessarily. The user departments have indicated that they would prefer to have deadlines established for both input and output. These deadlines should be rigidly adhered to with exceptions to be approved only by high level authority in the user department and the Data Service Bureau. See Recommendation No. 7.

6. The effectiveness of budget and personnel management is reduced by a fragmentation of responsibilities.

Responsibility for the personnel and budget functions has been fragmented in an effort to balance work load among the Bureau's two Principal Administrative Assistants. One is responsible for budget preparation, while the other handles budget administration and control. One is responsible for coordinating the Bureau's training program, while the other handles all of the other personnel functions.

Those who analyze and document the budget are most familiar with its content and priorities and can best administer expenditures. Likewise, they need to monitor expenditure trends and deviations from the budget plan in order to develop a sound proposal for the next fiscal year.

The staff assigned to coordinate the Bureau's training program should have a broader responsibility to assist the Principal Administrative Assistant in charge of personnel services. It should conduct studies in position classification and employee relations and draft directives dealing with personnel matters. This work is now done by the supervisor, who has only a clerical staff to process requests for certifications, timekeeping records, and other routine paper work. See Recommendation No. 2.

7. Insufficient attention has been given to the analysis of project status and computer equipment utilization.

The Data Service Bureau, as with many data processing organizations, emphasizes product output as the principal measure of user satisfaction. Given limited resources and the concern for rapid service, some basic elements of management have often been sacrificed by DSB. Project documentation, tracking, and control have not been given sufficient attention. This has, in turn, reduced the quality and increased the cost of automated systems.

In recognition of this problem in DSB, a Management Systems Group was established to provide continuous staff support by:

- 1) Monitoring the status of projects, reporting problems, and recommending corrective action to the General Manager.
- 2) Analyzing current and projected utilization of computer equipment.

Additional responsibilities were assigned in cost estimating, long-range planning, and data base design.

Regarding project status, two sources of information are reviewed by the Group on a regular basis. PROCON, an automated report of progress and resources dedicated to projects, is produced each week. It is not as helpful as it might be due to limited acceptance and use by line personnel, who apparently have not yet been convinced of its value. The attitude of the systems analysts and programmers who are ultimately affected by PROCON means the difference between success and failure of PROCON. Reports are often inaccurate and incomplete. The accuracy of information is not verified by many project leaders.

The other source of information is a summary report to the General Manager prepared every four weeks. The line divisions input data on the status of projects and utilization of hardware, which is reviewed by the Management Systems Group and consolidated into the final report. Analysis is minimal. Project status reflected in the report often conflicts with PROCON data. Changes in estimated completion dates are not always explained.

Information provided to the General Manager does not effectively indicate significant problems, causes, and alternative solutions which warrant his attention.

An analysis of computer equipment utilization, acceptable within the Bureau and to CAO staff who must evaluate the need for additional hardware capacity, has yet to be completed. A recent Bureau request for more equipment was unsubstantiated, indicative of insufficient analysis by DSB.

Responsibility for analysis of hardware capacity and technical decisions on new equipment is unclear. This has resulted in reduced communication and the assignment of personnel to do technical work for which they have not been trained. See Recommendation No. 5.

There are two basic reasons for the lack of progress in these areas of critical importance to effective data processing management. The primary reason is the poor working relationship between Management Systems and line divisions. Considerable resistance from line staff is to be expected whenever a "watchdog" function is introduced. Support and involvement by the General Manager is necessary to overcome this antagonism between line and staff. Insufficient high-quality personnel in DSB Management Systems has been cited as the second reason for lack of progress. Without the support of the management and high caliber personnel, the contribution of Management Systems will not support its continuing cost.

Another reason for lack of progress by Management Systems has been the assignment of other tasks which deplete personnel resources. Long-range planning and data base design take too much time and involve decisions not within the province of DSB. See Recommendation Nos. 3 and 4.

RECOMMENDATIONS

It is recommended that the General Manager of the Data Service Bureau:

1. Request approval of financing to modify the Resource Billing System to provide user departments with more detail on services provided and their cost.
2. Consolidate responsibility for budget preparation and administration under one supervisor and merge training with the other personnel services under the Personnel Analyst.
3. Reassign personnel in the Management Systems Group to concentrate their efforts on monitoring systems projects, analyzing their status, and providing input to the General Manager on problems and recommended corrective action.
4. Conduct regular management level meetings with staff from the line divisions and the Management Systems Group on project status and hardware utilization.
5. Assign personnel who are trained and experienced in computer hardware utilization to:
 - a. Develop standards for continuing evaluation of hardware capacity and utilization.
 - b. Expedite completion of a well-documented analysis of present hardware capacity and utilization, including the front-end communication system and the main-frame computers.
6.
 - a. Adopt the General Manager's "Project Status Report" as the official status report for general use and include major maintenance and modification requests in this report.
 - b. Provide "Project Status Reports" to operating departments.
7. Establish procedures so that the Data Control Section will have complete data control over all production jobs processed by the Data Service Bureau, including input and output deadlines.
8. Instruct the Management Systems Group to review all end-of-phase reports to insure their conformance to CAO Rule 13.



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9. Establish, within budgetary funds, a documentation unit which will be responsible for:
 - a. Coordinating the documentation effort of the Bureau.
 - b. Estimating, in cooperation with the Systems and Programming and Computer Operation Divisions, the resources required to complete documentation.
 - c. Establishing priorities, to be approved by the General Manager and City Administrative Officer, for the completion of the effort.
 - d. Expediting the work of the documentation library for system documentation.
 - e. Completing the documentation standards by no later than January 1, 1976.
 - f. Providing assistance to document the EAM jobs.
 - g. Operating the documentation library.
 - h. Establishing criteria for the turnover of a project from development to maintenance status.

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